



ATI Code Compliance Research Report

ARCHITECTURAL TESTING, Inc.

CCRR-0100

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Mid Atlantic Vinyl Products, Inc.
5109 Commonwealth Drive
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1.0 Subject

Precision Rail® Vinyl Railing

Also identified as *Pro-Rail® Vinyl Railing*

Baltimore, Windsor, Fairfield, Brookfield, Kenmore, Charleston, Manchester and Lexington Vinyl Guardrail Assemblies (Guards)

2.0 Research Scope

2.1. Building codes:

2000, 2003 International Building Code (IBC)

2000, 2003 International Residential Code (IRC)

1999 BOCA National Building Code

2.2. Properties:

Structural performance

Durability

3.0 Description

3.1. General - *Precision Rail®* vinyl railings are guardrails or guards under the definitions of the referenced codes intended for use on elevated walking areas in buildings and walkways as required by the codes.

3.2. Materials and Processes - *Precision Rail®* vinyl railings are an assemblage of extruded and molded components utilizing Poly Vinyl Chloride (PVC) material and aluminum reinforcements and mounting brackets. All systems consist of the following components:

3.2.1. Top rails are either a T-Rail 3.5" wide at the top, 2" wide at the bottom and 3.5" tall or a 2" wide by 3.5" tall rectangular profile.

3.2.2. Bottom rails in all systems are a 2" wide by 3.5" tall rectangular profile.

3.2.3. Balusters are 1.5" square and come in two styles. One is 1.5" square throughout its length and the other is 1.5" square at the ends and is blow molded to form a turned spindle shape through the mid-section of its length.

3.3. 42-Inch High Guards - The *Baltimore, Windsor, Fairfield and Brookfield* series are intended to serve as 42-inch (1067 mm) high guards up to 10-feet (3048 mm) in length for use in all residential use groups.

3.3.1. An extruded aluminum insert provides reinforcement in the top and bottom rails. A secondary extruded aluminum insert is used in the top rail for railing lengths exceeding 8-feet (2438 mm).

3.3.2. Top and bottom rails are connected to posts with aluminum brackets secured to the posts with stainless steel wood screws.

3.3.3. 4x4 PVC posts are supported by an UltiMount HD™ heavy duty post mount system.

3.4. 36-Inch High Guards - The *Kenmore, Charleston, Manchester and Lexington* series are intended to serve as 36-inch (914 mm) high guards up to 10-feet (3048 mm) in length for use only in One- and Two-Family Dwellings.

3.4.1. An extruded aluminum insert provides reinforcement in the top rail.

3.4.2. Top and bottom rails are connected to posts with PVC brackets secured to the posts with stainless steel wood screws.

3.4.3. 4x4 PVC posts are supported by an UltiMount II™ post mount system.

3.4.4. Bottom rails have an intermediate support located at mid-span.

4.0 Performance Characteristics

4.1. *Precision Rail®* vinyl railings have demonstrated their capacity to resist the design loadings specified in Chapter 16 of the IBC and BOCA codes when tested in accordance with ICC-ES AC174.

4.2. Materials used to produce *Precision Rail®* vinyl railings are deemed equivalent to preservative treated or naturally durable wood for resistance to weathering effects, decay and attack from termites.



5.0 Installation

Installation shall be in accordance with the manufacturer's installation instructions and this report. Where differences occur between this report and the manufacturer's installation instructions, this report shall govern.

5.1. Railing assemblies consist of top and bottom rails with pre-routed holes to receive balusters. Aluminum railing reinforcements are inserted in the rails during assembly as specified for the series/model (see 3.0 Description).

5.2. PVC brackets used with 36-inch high guards are secured to the support posts with two #12 by 1-1/2" long stainless steel wood screws.

5.3. Aluminum brackets used with 42-inch (1067 mm) high guards are secured to the support posts with four #12 by 3" long stainless steel wood screws.

6.0 Supporting Evidence

6.1. Manufacturer's drawings and installation instructions.

6.2. Reports of testing in accordance with ICC-ES Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails), AC174 approved April 2002, editorially revised July 1, 2004.

6.3. Quality control manual in accordance with ICC-ES Acceptance Criteria for Quality Control Manuals, AC10, approved October 2004, editorially amended April 2005.

7.0 Conditions of Use

The guardrail assemblies identified in this report are deemed to comply with the intent of the provisions of the referenced building codes subject to the following conditions.

7.1. Guardrails are limited to use in residential use groups (Group R) of Type V-B (5B) construction. 36-inch high guards are further limited to use in One- and Two Family Dwellings (IRC).

7.2. Compatibility of fasteners, post mount brackets and other metallic components with the supporting structure including chemically treated wood is not within the scope of this report.

7.3. The UltiMount HD™ heavy duty post mount system shall be anchored to concrete and/or steel with approved anchors.

7.4. The UltiMount II™ post mount system may be mounted in a wood deck or anchored to concrete and/or steel with approved anchors. Installation in wood decks shall be in accordance with the manufacturers installation instructions (see figure 1).

7.5. Post mount system anchors used in concrete/steel installation are not within the scope of this report and are subject to evaluation and approval by the building official. Anchors must satisfy the design load requirements specified in Chapter 16 of the building code and must meet the following minimum requirements.

7.5.1. A minimum of four anchor bolts must be used and located in the four pre-drilled holes in the post base plate.

7.5.2. The anchors must be stainless steel or other approved material compatible with aluminum.

7.5.3. The anchors must have a minimum diameter equal to 5/16".

7.5.4. Where required by the building official, engineering calculations and details shall be provided. The calculations shall verify that the anchorage complies with the building code for the type and condition of the supporting construction.

7.6. All systems are manufactured in accordance with the manufacturer's approved quality control system with inspections by Architectural Testing, Inc. (AA-676).

8.0 Identification

Mid Atlantic Vinyl Products *Precision Rail® Vinyl Railing* produced in accordance with this report shall be identified with labeling on the individual components or the packaging that includes the following information:

8.1. The mark of the independent inspection agency, Architectural Testing, Inc. (AA-676)

8.2. The ATI Code Compliance Research Report Number (CCRR-0100)

9.0 Code Compliance Research Report Use

9.1. No warrantee is either expressed or implied by ATI as to suitability of use of the products identified in this report.

9.2. Use of code compliance research reports may not be used in any way that implies endorsement of the product or manufacturer by ATI.

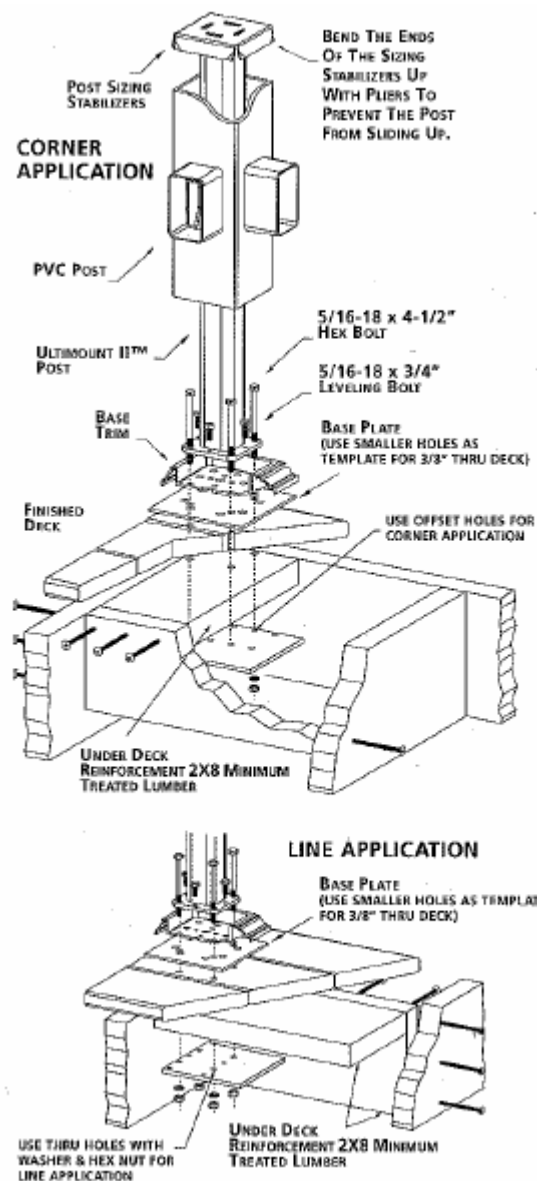


Figure 1 - UltiMount II™ Installation in a Wood Deck